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**(88) Date of publication of the international search report:**  
29 July 2004

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/25677

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : E21B 23/00; F16L 25/00

US CL : 166/207,380; 285/333

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 166/207,380,206,313,381,242.6; 285/333,53; 403/179,273

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A. P	US 2003/0067166 A1 (SIVLEY, IV) 10 April 2003 (10.04.2003), whole document.	1-4
A	US 5,314,014 A (TUCKER) 24 May 1994 (24.05.1994), whole document.	1-4
A	US 4,614,233 A (MENARD) 30 September 1986 (30.09.1986), whole document.	1-4
A	US 3,520,049 A (LYSENKO et al) 14 July 1970 (14.07.1970), whole document.	1-4

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

12 December 2003 (12.12.2003)

Date of mailing of the international search report

21 MAY 2004

Name and mailing address of the ISA/US

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**Continuation of B. FIELDS SEARCHED Item 3:**  
JPO, EPO, Derwent

Terms: sleeve, tubular, expansion/expand, magnetic, impulse/impulsive